STATISTICAL METHODS

GENERAL

The Nebraska Agricultural Statistics Service has two primary objectives:

1. To develop accurate, reliable agricultural statistics.
2. To move those statistics to users as rapidly as possible.

Data collection to achieve these objectives involves sample surveys of farmers and ranchers, grain companies and elevators, auctions, packing plants, retail stores, and many other agricultural enterprises.

From data reported by these many sources, statisticians, using all available statistical tools, generate State totals forming official State and USDA estimates. Cooperation of USDA and the Nebraska Department of Agriculture provides resources for distribution of State totals into agricultural statistics district and county estimates.

Analysis and interpretation of these basic statistics are performed by others, such as University of Nebraska Extension Specialists, private economists, and the producer. Our role is to provide basic data and every effort within available resources is made to provide accurate and timely information. This process begins with survey design and continues through data collection, summarization, analysis and finally the release of the crop, livestock and price statistics.

STATE ESTIMATES

The U.S. Department of Agriculture is required by law to provide State and National crop, livestock and price statistics for each major producing State.

For many years, mailed, non-probability surveys served as the backbone of data gathering and they are still used to some extent. Today, probability sampling, a more sophisticated sampling procedure, is being incorporated as funds and applied technology allow. Some types of probability sampling used in Nebraska are Area Frame Sampling, List Frame Sampling, and Multiple Frame Sampling. Sampling farm operators in a specifically outlined geographic area is known as Area Frame Sampling, while sampling a list of all known producers of a specific commodity is known as List Frame Sampling. A technique called Multiple Frame Sampling takes advantage of the attributes of both the Area and List samples. Multiple Frame Sampling is used for estimating major crop and livestock items.

The concept of probability sampling is maintained in all three types of sampling. Data collection for the probability surveys involves personal enumeration and telephone or personal followup for all non-respondents to mail questionnaires. These probability surveys are expensive on a per sampling unit basis but yield State results that have greater precision and allow measurement of the sampling error. Good cooperation from survey respondents contributes heavily to accuracy. A very dedicated staff of field enumerators and office telephoners assist in collecting accurate survey data.

Three of Nebraska's major crops (corn, soybeans and wheat) are measured by objective yield procedures. Forecasts before harvest incorporate plant counts, kernel and head counts and weight. Sample fields are entered with permission of growers, by field enumerators from May through October to take counts and measurements during the growing season. After harvest, gleaning provides estimated harvesting loss. Monthly crop reporters give dependable mail survey yield indications during the season.

COUNTY ESTIMATES

Federal appropriations and regulations support State estimates for specific agricultural items that are important in National totals and some county level estimates. When additional items or geographic descriptions within States are needed, supplemental funding is required. To provide estimates by county, for example, requires a much larger sample because each county must have enough reports to provide a sound basis for estimates. Our acreage surveys and Annual Agricultural Survey give every operator a chance to report annually and provide a solid basis for county estimates.

CHECK DATA

In addition to producer surveys, check data are collected from the marketing channels, county extension agents, FSA, etc., to verify or supplement the grower survey data. These data become available -- usually long after harvest and are used to establish final production and marketing figures.

The final estimate is arrived at when all grower survey data and marketing data (check data such as: handler or processor receipts, slaughter, and market shipments) have been analyzed. These data then become the statistical history against which current forecasts and estimates are viewed.